Versar inc.

M E M O R A N D U M

TO: Laura Casey cc: Jim Buchert

11.1126.1000.001.01

FROM: Mike Koontz/Diane Sinkowski

DATE: June 6, 2005

SUBJECT: Review of "Exposure and Screening-Level Risk Assessment for Carpet Fiber and Food Wrap Scenarios Associated with Pigment Red 144/214" (April 11, 2005)

As requested, Versar has reviewed the revised calculations provided in the April 11, 2005, Clariant report. Remaining issues that should be addressed or discussed are as follows:

1. Without supporting information, such as laboratory studies or direct measurements, on PCB retention in carpeting, Table 3 should include calculations of acceptable PCB concentrations assuming additional retention factors, including a worst-case retention factor of 100 percent (i.e., 1.0).

2. We are not comfortable with the inclusion of the assumed air exchange rate of 126 air exchanges per week into the Bennet and Furtaw equation calculating the volatilization factor (VF) (see Equations 5 through 7, pages 2-3 and 2-4). In particular, the use of a weekly value seems somewhat arbitrary and the units (air exchanges per week) do not produce the appropriate units for VF (m^3/kg), as demonstrated below.

   The value for VF can be determined from the following relationship, given as Equation 7 in the report:

   $$VF = (d_w * 10^{3.82 - 0.62 \log VP} * AE) / FW$$ Equation 7, page 2-4

   Where:

   d_w = carpet thickness in m,
   VP = vapor pressure in Pa,
   AE = air exchanges per week, and
   FW = carpet face weight in kg/m^2.

   Using 0.01286 m for d_w, 0.0069 Pa for VP, 126/week for AE, and 1.7 kg/m^2 for FW, as given in the report, we get the following value for VP:

   $VF = [(0.01286\ m) * (10^{3.82 - 0.62 \log (0.0069\ Pa)}) * (126/week)] / 1.7\ kg/m^2 = 137{,}745\ m^3/kg\text{-}week$

The calculated value for VF is not presented in the report, so the resulting units are not presented. However, VF, as used in Equations 1, 7, and 9, must have units of m^3/kg. Thus, further justification of this calculation is necessary.

Please feel free to contact us at 703-750-3000 x 737 if you have any questions or comments.